

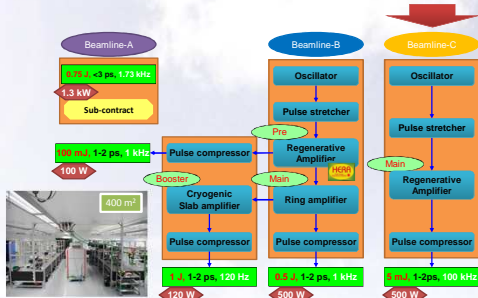
(S53) Development of High Repetition Rate Seed Pulse at 324nm for EUV-FEL using Picosecond Thin Disk Regenerative Amplifier

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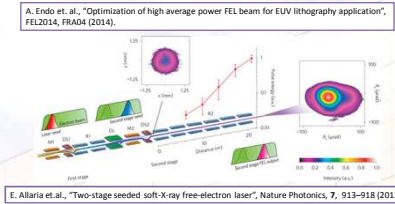
Introduction

Thin Disk-Based High Power Picosecond Laser Beamlines in HiLASE Centre



EUV Generation via Two-stage FEL

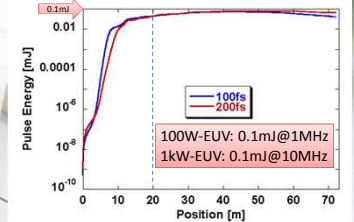
	Fermi FEL-2	EUV FEL
Seed	260 nm	324 nm
1 st FEL	32 nm	40.5 nm
2 nd FEL	10.8 nm	13.5 nm



Scaling to Kilowatt Average Power

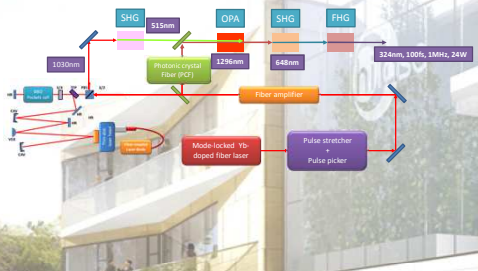
Charge	300pC	E-beam Energy	331.13 MeV
Emission	1mm-mrad	Undulator Period	9mm
Energy Spread	10 ⁻⁴	K Value	1
Bunch Length	100fs/200fs	EUV Wavelength	13.5nm

FEL pulse energy growth along Undulator

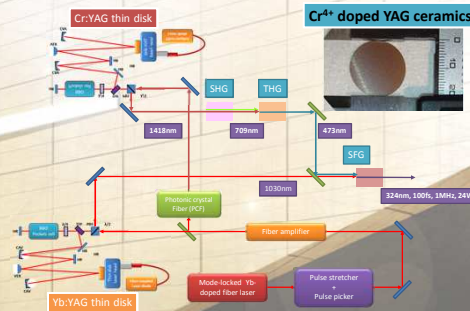


Seed Source for EUV-FEL

Yb:YAG Thin Disk Based UV Seed Source using Optical Parametric Amplification

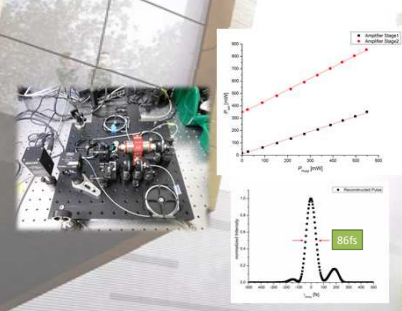


Yb:YAG and Cr:YAG Thin Disk Based UV Seed Source for EUV-FEL

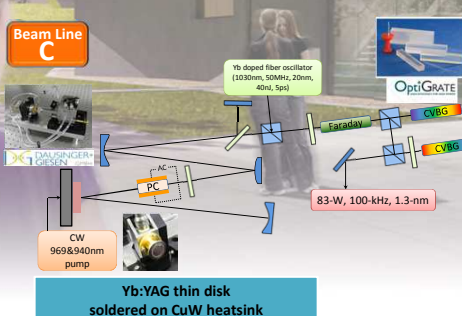


Experimental Results

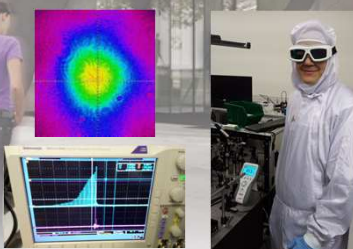
Mode-Locked Fiber Oscillator and Fiber Amplifier



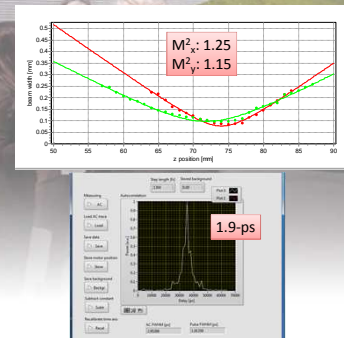
Yb:YAG Thin Disk Based Regenerative Amplifier in Beamline C



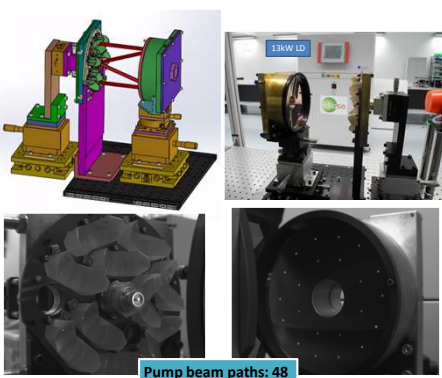
83-W@100-kHz Regenerative Amplifier



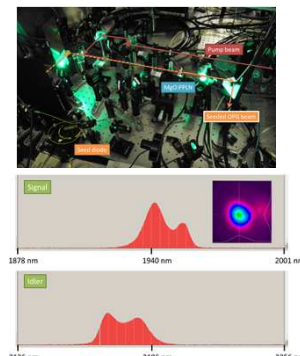
M² and Pulse Duration Measurement



Design and Development of Large Size Thin Disk Head for Kilowatt Operation



Mid IR Pulse Generation



Summary

